

MASTER PARCOURS MIKS SOUS PARCOURS COMPLEX SYSTEMS AND STRATEGY (APPRENTISSAGE - EN ANGLAIS)

Master Management des systèmes d'information

MIKS is a Master Programme in ICT and Management. It offers a great opportunity for European and International students to get a master degree from the prestigious Sorbonne University. The students involved in MIKS shall specialize in the Management of Information and Knowledge Systems (IKS) and the Governance of IKS projets.

The program '**Complex systems and Strategy**' of Master **MIKS** (Management of Information and Knowledge Systems) is performed in **collaboration** with the **University of Bergen**. This program, which develops the fundamentals of **Big Data and System Dynamics**, is enriched by our experience of the program Big Data of the Information and Knowledge Systems Master (SIC in french) and draws on the strengths of two leading universities in these fields. The program is specially designed for students who wish to become actors of transformations involving all levels of responsibility, in an international, uncertain and complex context where organizations are constantly confronted with the need to improve the development of strategies, the conception of policies and decision-making.

This is the first international master's degree combining two programs aimed at teaching methods for **acting in Complexity**, System Dynamics and Big Data. To the best of our knowledge, no other program offers this combination of skills to address both dynamic complexity (System Dynamics) and spatial and temporal complexity (Big Data). The skills developed will be valued in all professions that will require understanding the strength and risks of big data and inventing uses for it in the new deal of *digital transformation* while understanding and mastering the information system of the enterprise. The learning and training in system dynamics will also allow our students to consider professional perspectives in the fields of research, energy, consulting, logistics, production or health (tragically topical).

The master program is performed in apprenticeship. The CFA AFIA, our partner for enterprise relations, supports the students which have been accepted in the master program to find a job in a company from September 2020 to end of November 2021. For non-EU students a work permit is required. The CFA AFIA is also financing the students and the master program through the training taxes paid by the companies where the apprentice students are working.

Information systems and information and communication technologies (ICT) are the fastest growing and most innovative industries for decades. Regardless of the position held, knowledge on information systems and ICT is required from managers and constitutes a significant criterion for recruitment. However, the socio-economic market has a demand for skills that has not yet been fully met (both quantitatively and qualitatively). The phenomenon seems to be reinforced with the rise of technologies related to data and to reasoning mechanisms (artificial intelligence). Although not new (indeed, these technologies date from the 80s), the capacities related to their use are increasing significantly, thanks to the interconnectivity of computers and software systems and also to the evolution of these technologies. Notwithstanding, the organizational maturity of the uses of ICT in the field of computerization has rarely gone hand in hand with technological advances. The 'brand new, wonderful' adoption of such technologies has sometimes even led companies to destroy value instead of creating it. Example, the wave of outsourcing of software development, on purely financial considerations in the 2000s, before deciding to re-internalize (because 'ultimately, it does not cost less and the quality is less good') and finally observing that the business knowledge had been lost; in fact the resulting -indirect- impacts had not been identified, or even understood, due to a **lack of systemic vision**.

We must therefore train smart brains capable of understanding what can be done with technology, how, and under what conditions (the latter very often being of an organizational nature). In all our masters in information and knowledge systems, the pedagogy which is adopted allows students, with varied profiles (management or IT) at the beginning of the master program, to develop skills for their future jobs in which they will not be able to excel without a successful alliance between business teams and IT teams. This is today an essential condition for organizations to succeed in their business/IT alignment and in the governance of their information system (or even that of the organization) at the service of responsible and sustainable performance and competitiveness. Master MIKS provides the skills necessary for this alliance, the success of which is a major asset in the **digital transformation**.

MIKS features

English Medium of instruction: All teaching, course material, course and practical/project work shall be in English.

The National French 'Apprentissage' Style of teaching/learning: Under MIKS students spend alternate periods in the company and academia (cycle of 4 weeks in industry followed by 2 weeks in academia). They work under mentorship of two designated mentors, one each in industry and academics, respectively. Thus there is a continuous cross fertilization between course work and industrial practice.

Earn while you Learn: Each admitted student to MIKS is provided paid contractual employment worth between 1000 and 2000 Euros per month, for one year with a French company. The Centre de Formation par l'Apprentissage, CFA-AFIA, co-ordinates the relationship between the University, the companies and MIKS students. As part of this, it assists students in finding employment and paying for their tuition fees.

An innovative pedagogy: Each class is composed in equal shares of students having a background in ICT and of students having a background in management. These apprentices work and learn together during a year in realistic situations of IKS projects bringing together the IT specialists and all stakeholders of IKS and of IKS projects. The pedagogy which is adopted allows these apprentices to get ready for their future professions in which they cannot excel without a successful alliance between business teams and IT teams. This is henceforth an inescapable condition so that the organizations succeed in their business/IT alignment and IT governance (and corporate governance) in the service of a responsible and sustainable competitiveness. **The MIKS Master allows to acquire the necessary skills to successfully build this alliance.**

Infos pratiques

Composante : Ecole de management de la Sorbonne (EMS)

Durée : 2 ans

Crédits ECTS : 120

Campus : Centre Broca (FCPS & IREST)

En savoir plus :

Web Site of the MIKS masters

<https://formations.pantheonsorbonne.fr/fr/catalogue-des-formations/master-M/master-management-des-systemes-d-information-KBUV9JGI.html>

Présentation

Objectifs

- * To provide to students knowledge and know how on Information and Knowledge Systems (IKS) and on engineering management for IKS; **engineering management** is a specialised form of management that is concerned with the application of engineering principles to business practice
- * To expose them to its immediate experience in French industry by performing tasks that are closely related to the academic instruction
- * To develop multidisciplinary skills to allow students to become adept at recognizing and orchestrating the interplay between IKS, organization strategy and business processes.
- * To the best of our knowledge, no other program in the world offers you this combination of skills to address both dynamic complexity (Systems Dynamics) and spatial complexity (Big Data).

In addition, the program offers a unique and intense international experience that will prepare you for an international career: Working in a multidisciplinary and multicultural team on complex high-tech projects will teach you a lot about intercultural communication and understanding

- * Studying at two different universities in two different countries will help you learn to adapt and become more cosmopolitan, at home anywhere in the world
- * Benefit from a paid apprenticeship contract to learn a trade alongside professionals (apprenticeship master) who pass on their know-how
- * All these skills are highly valued by employers, and will therefore make you a very interesting candidate

Savoir-faire et compétences

Student output profile

At the end of the course students shall have acquired a range of knowledge, skills and attitudes to be successful in their professional life. Specifically, they shall have

- * knowledge about management and governance of IKS from the dual perspective of business and computing
- * know how to solve complex problems by selecting an assembly of appropriate techniques
- * soft skills for effective communication, inter-personal relationships and group work

Our goal is to teach you everything you need to know to start an international career. After completing our master's program, you will know :

- * How to build a strategic simulation model
- * How to design and implement a Big Data project
- * How to apply these methods to various real life problems
- * How to adapt the business strategy

Dimension internationale

Deux mobilités internationales de 6 semaines chacune à l'Université de Bergen.

Les + de la formation

- * Une compétence pédagogique basée sur plus de **40 promotions en 3ème cycle** en ingénierie et management des systèmes d'information (DESS SIC

devenu Master SIC à la faveur de l'harmonisation européenne).

- * Une **expérience de 27 ans dans la formation par la voie d'apprentissage au niveau Master 2** (Master SIC).
- * Une collaboration avec l'Université de Bergen (deux séjours académiques de 6 semaines chacune)
- * Des groupes à effectifs réduits permettant le suivi personnalisé des étudiants.
- * Dans toutes les matières enseignées par les enseignants-chercheurs, les contenus sont continuellement enrichis par les retombées de leurs recherches académiques.
- * Le mode d'enseignement vise à compléter les connaissances des étudiants et à développer leurs compétences pour faire face aux multiples situations rencontrées dans la conduite et le management de projets SI. Il vise à développer chez les étudiants un comportement mûri et une plus grande autonomie les préparant aux activités de conseil. L'apport des représentants du monde socioprofessionnel est essentiel au regard de ces attentes.
- * La réputation de l'Université Paris 1 Panthéon-Sorbonne au niveau international.
- * Des contrats d'apprentissage dans les entreprises comme Air France, SNCF, France Telecom, AXA, Generali, HSBC, LCL, Crédit Agricole, BNP Paribas, Société Générale, Air Liquide, Renault, PSA ...
- * La préparation d'un mémoire de master qui est un document de recherche, à caractère individuel et susceptible d'être associé à un CV. Ce mémoire sert très souvent à l'apprenti pour se présenter et montrer ses aptitudes (i) à traiter en profondeur un sujet de réflexion et de recherche ; (ii) à prendre de la hauteur dans la résolution d'un problème ; (iii) à baser ses propositions et ses arguments sur des connaissances.
- * Un diplôme de Master en Management des Systèmes d'Information, délivré par l'Université Paris 1 Panthéon-Sorbonne, et son Ecole de Management
- * Pour les apprentis, une rémunération de début de carrière au dessus de la moyenne du marché et des salaires comparables à ceux des diplômés des meilleures écoles d'ingénieur.

Le mot du Directeur

Depuis 27ans, le Master SIC s'adresse aux étudiants de formation initiale qui souhaitent se préparer aux métiers des systèmes d'information **par la voie de l'apprentissage**. La spécialisation d'origine, qui a accueilli plus de 50 apprentis tous les ans, continue aujourd'hui sous le sous-parcours **Business Analysis**. **Depuis 2016**, un nouveau sous-

parcours est proposé avec environ 30% de volume horaire différencié : **SIC Big Data**.

Depuis septembre 2020, une nouvelle spécialisation du master SIC est proposée en apprentissage, **SIC Cybersécurité, et vise à développer une expertise** en cyber sécurité et cyber résilience pour les systèmes d'information ouverts et interconnectés.

Depuis la rentrée 2009, à la demande des entreprises, le master est également proposé en langue anglaise: Master in Management of Information and Knowledge Systems (**MIKS**). La formation (M2) est programmée sur 12 mois; elle se déroule en alternance sous formes de périodes Université-Entreprise. **De septembre 2009 à septembre 2016**, le Master en anglais a été organisé sous la forme d'un double master IKSEM. Depuis, il a été remplacé par deux masters distincts, l'un en Management des Systèmes d'Information (**MIKS**), l'autre en MIAGE.

Depuis septembre 2020, une nouvelle spécialisation du master MIKS est proposée en apprentissage, en collaboration avec l'université de Bergen: **MIKS Complex Systems and Strategy**. Le parcours original a été intitulé, pour faire ressortir sa spécificité, **MIKS Capability Engineering and Management**.

Jusqu'en septembre 2020, les Masters SIC et MIKS par la voie de l'apprentissage ont accueilli environ 75 apprentis tous les ans.

Depuis Septembre 2021, notre capacité d'accueil en Masters 2 SIC et MIKS est d'environ **125 apprentis**, grâce à nous deux nouveaux sous-parcours, SIC Cybersécurité et MIKS Complex Systems and Strategy.

Prix et Presse

- Dans son classement annuel des meilleurs masters de 2009 à 2019, le Cabinet SMBG classe le Master SIC parmi les



20 meilleurs de sa catégorie

'Management des Systèmes d'Information' (7ème en 2012, 5ème en 2013, 7ème en 2014, 8ème en 2015, 6ème en 2016, 5ème en 2017, 6ème en 2018, 5ème depuis 2019).

- le Master SIC est aussi classé par Eduniversal comme l'un



des meilleurs mondiaux

dans sa catégorie.

- Un étudiant de la promotion 2010-2011 IKSEM obtient le prix du « major des majors » parmi les étudiants de plus de 20 formations de niveau M2 de l'Ecole de Management de la Sorbonne (UFR06).

- Le Journal de l'Apprentissage dans les métiers de l'informatique (apprenTIC) de Syntec Informatique réserve, dans son numéro de Mai 2010, deux pages à la place des femmes dans les métiers de l'informatique, et met au devant de la scène une apprentie du Master SIC.

- Le Master SIC fait « figure de pionnier en termes de préparation au métier d'urbaniste » (Banque & Informatique, Décembre 2006).

- Dans son classement des diplômés 2006, le Cabinet SMBC délivre le 29 Juin 2006 un trophée de la pédagogie au Master SIC de l'IAE de Paris.

- Dans son classement des diplômés 2005, le magazine Challenges (décembre 2004) délivre la médaille d'or à l'IAE de Paris et ses formations. Parmi les formations particulièrement mises en avant, se trouve le DESS SIC en apprentissage.

Organisation

Membres de l'équipe pédagogique

Director of Master Programmes: M2 SIC / M2 MIKS / M1 MSI / M1 SIC

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Admission

Conditions d'admission

Admission process

Two-step Process

- * **step 1** : A short list is prepared based on an evaluation of the academic record, work experience and marks obtained in an interview possibly conducted by video conferencing for foreign candidates living abroad.
- * **step 2** : Admission shall be confirmed for candidates in the short list after approval by CFA-AFIA and obtaining the one year contract with a French company.

Application timeline

- * Application deadline: from March 18th to **April 21st, 2024** (reception of the application on the online platform [ecandidat](#))
- * Interview: From April 23d to May 14th, 2024
- * Decision notification: May 18th, 2024
- * Programme start: September 2024

If YOU CAN FILL an **application form in french**, apply on line: [Inscriptions en ligne](#) **from march 18th to april 21st, 2024.**

ONLY IN CASE YOU DO NOT SPEAK FRENCH [Download the application form](#)

Modalités d'inscription

Do you need a visa ?

European citizens

As a citizen of the European Union (EU), the Swiss Confederation (SC) or the European Economic State (EEC: Norway, Liechtenstein and Iceland) you are entitled to get an employment in a French organisation. Therefore, you don't need a visa. A valid passport or identity card is sufficient to enter France.

Non European citizens

Non European Citizens must enter the French territory with a Student Visa. A long-term student visa is required for students intending to study in France for more than 6 months. Once you have a proof of admission to the University of Paris 1, students from outside the European

Economic Area (EEC, EU, and SC) must obtain a long stay student visa (3 to 12 months). The application must be presented to the French consulate services of your country of residence. This visa is mandatory in order to obtain the temporary work permit necessary to be employed by a French company during your studies. If you enter France with a tourist visa, you cannot apply for a work permit and cannot apply for a student visa while in France.

Work Permit

*Each admitted student to MIKS is provided paid contractual employment for one year with a French company. The Centre de Formation par l'Apprentissage, [CFA-AFIA](#), co-ordinates the relationship between the University, the companies and MIKS students. As part of this, it assists students in finding employment. In order to get contractual employment, students might need a **Temporary Work permit**, depending of their country.*

European students

Students from the European Union (EU), the Swiss Confederation (SC) or the European Economic State (EEC: Norway, Liechtenstein and Iceland) do not need a Work Permit. As an exception however, citizens from Bulgaria and Romania still need a Temporary Work Permit. However, the process to obtain it is a simplified one. It will be carried out after arrival in France with the help of the University upon admission of the student in the MIKS Masters. You don't need to do anything before coming to Paris.

Non European students

Non European students must obtain a Temporary Work Permit after arrival in France on a student visa. The process is simplified for students having an admission in a Masters programme in the 'apprentissage' mode (e.g. MIKS case). However, the constraint is that the student cannot be a 'first-migrant': he cannot enter France for the purpose of this training and must have been student in France before that.

In order to obtain the temporary work permit, the student will be guided by the MIKS office. The following documents are usually required:

- * passport with a student's visa,
- * a certificate proving the admission in the MIKS programme (provided by the University),
- * a copy of the "apprentissage" contract of the French employing Company.

Public cible

Eligibility

- * Age: Candidates must not have attained the age of 30 years at the time of admission to MIKS.
- * Qualifications: Candidates must have passed the first year of a Masters programme in the area of Information Science, Computer Science, Software Engineering, Management Science or allied area. They must have completed 240 credits in the European System, with a background in ICT and in management.
- * English Language Proficiency: Candidates should have passed TOEIC having obtained a minimum score of 700 or should be able to demonstrate an equivalent proficiency in English.

Tarifs

Tuition fee: Free in apprenticeship (supported by the enterprises)

Et après

Insertion professionnelle

The Master will provide you with many skills that will allow you to develop the flexibility required to succeed in European and World wide organizations, whether they are large consulting firms, large companies, public administrations or NGOs.

The training aims to train executives in management and governance of data and Information and Knowledge Systems (IKS). It targets a range of professions accessible directly at the end of the master's degree or in the medium term:

Sous-parcours MIKS Complex Systems and Strategy

- Consultant in Information systems
- Consultant in change management
- Consultant in Digital Transformation (*)
- Entreprise architect
- Business analyst
- Requirements engineer
- Project manager
- Chief Digital Officer (*)
- Data analyst (*)
- Data scientist (*)
- Green IT consultant (*)
- *Sustainable Development Officer* (*)
- All professions that will require understanding the strength (and the risks) of big data and inventing uses for it in the new deal of the "digital transformation" of companies while understanding and mastering the company's information system
- Chief Information Officer

Their training in Systems Dynamics will also allow them to open up their prospects for employment in the fields of research, energy, consulting, logistics or production.

Voir la



Nomenclature RH 2015 du CIGREF

et



Nomenclature RH 2022

(Club Informatique des Grandes Entreprises Françaises) pour une description détaillée de ces métiers.

Programme

Organisation

The curriculum is of 14 months duration. It begins in Septembre and ends in November of the next year.

- * 12 weeks at the University in Paris
- * 12 weeks at the University in Norway
- * 39 weeks in the company

Master 1 Management des systèmes d'information parcours Management of information and Knowledge systems

Semestre 1

UE1 : Enseignements fondamentaux	18 crédits
Processus et outils RH	36h
Stratégie d'entreprise	52,5h
Technique d'enquête en management	52,5h
UE2 : Enseignements de spécialisation	6 crédits
Big data	36h
Langue	
Anglais de gestion	16,5h
Recherche en management	36h
UE3 : Enseignements d'ouverture	6 crédits
Choix de 2 matières	
Algorithmique et ordinateurs : initiation à la pensée info.	36h
Droit du travail	52,5h
Entreprises en difficulté	36h
Publicité et marketing communication	52,5h
Relations professionnelles	36h

Semestre 2

UE1 : Enseignements fondamentaux	16 crédits
Informatique (Syst d'info et informatique)	69h
Planification et contrôle	52,5h
Théorie des organisations	36h

UE2 : Enseignements de spécialisation	6 crédits	
Langue	2 crédits	
Anglais de gestion		16,5h
Techniques quantitatives de gestion		36h
UE3 : Enseignements d'ouverture	6 crédits	
Choix de 2 matières		
Evaluation de projet		36h
Expertise statistique en marketing		20h
Logistique		36h
Management entrepreneurial et création d'entreprise		36h
Politique de réglementation et concurrence		36h
UE4 : Stage		
Rapport de stage et soutenance		

Master 2 Professionnel MIKS sous parcours Complex systems and Strategy (en apprentissage et en anglais)

Semestre 3

UE1 System dynamics	16 crédits	140h
Model-Based Analysis and Policy Design (PARIS MOOC BERGEN)	3 crédits	35h
System dynamics (Basics) (PARIS support MOOC BERGEN)	3 crédits	35h
System Dynamics Modeling Process (VOYAGE BERGEN)	10 crédits	70h
UE2 Decision system and Data science	6 crédits	70h
Big data, Data Mining and Visualisation		35h

Predictive intelligence (and R)		35h
UE3 Strategy and communication	8 crédits	70h
Strategy and change management	4 crédits	35h
Team building and intercultural communication	4 crédits	35h

Semestre 4

UE1 Systemic view of enterprise	6 crédits	94h
Business process modeling and management	2 crédits	28h
Enterprise architecture and IS urbanisation	2 crédits	28h
Requirements engineering	2 crédits	28h
UE2 System dynamics for problem solving	12 crédits	84h
Client Based Modeling Project (VOYAGE BERGEN)	10 crédits	70h
Horizontal IKS Projet (System Dynamics and Big Data)	2 crédits	14h
UE3 Methodology and master thesis	12 crédits	37h
Master thesis	10 crédits	9h
Research seminars and coaching	2 crédits	28h